

ABSTRACTIMAGE PROCESSING APPARATUS

A 3-D model of an object is created by processing images taken from a series of camera positions. An initial sequence of the images is processed to define respective image co-ordinates of matching features to generate a set of model data defining model points in a 3-D space of the model and to obtain respective camera solutions representative of positions and orientations of virtual cameras in the 3-D space defining views of the model corresponding to the images. A new image is added to the sequence and processed to obtain a camera solution for a corresponding new virtual camera for use in generating further model data. Processing of the new image comprises;

(a) identifying a plurality of image points in the new image which are matched to a respective plurality of image points of at least one preceding image of the sequence for which respective 3-D model data defining corresponding model points exists;

(b) determining a set of 2-D image co-ordinates of the identified image points in the new image and co-ordinates of respective model points; and

(c) processing the set of 2-D image point co-ordinates and respective 3-D model point co-ordinates to

obtain the camera solution for the new image using a solving process in which the position and orientation of an image plane representative of the new virtual camera are calculated from a geometrical relationship in the 3-D model space between model points and image points defined by the set of co-ordinates.